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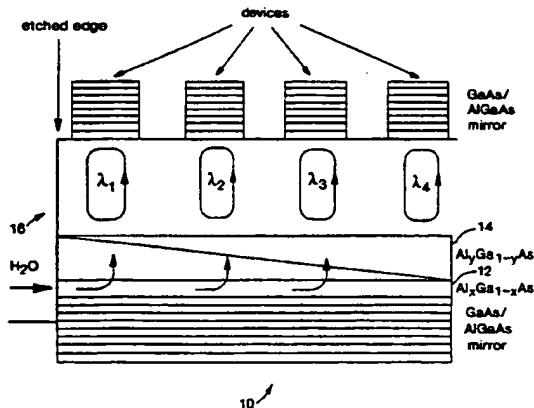
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(54) Title: POSTGROWTH ADJUSTMENT OF CAVITY SPECTRUM FOR SEMICONDUCTOR LASERS AND DETECTORS



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(57) **Abstract:** A method for selectively tuning the wavelength of optical cavities in semiconductor lasers and detectors after epitaxial growth using lateral wet oxidation. Tuning layers of $Al_xGa_{1-x}As$ and $Al_yGa_{1-y}As$ are positioned inside or adjacent to the optical cavity. Wet lateral oxidation is then used to transform the high-index semiconductor into a low-index oxide for tuning. The oxidation proceeds laterally into the $Al_xGa_{1-x}As$ and then attacks the $Al_yGa_{1-y}As$ layer vertically. The ratios of the oxidation rates can be controlled by adjusting the compositions of the materials, most notably because the oxidation rate increases as the amount of aluminum increases. The oxidized thickness depends on the time that the tuning layer is exposed to vertical oxidation. Due to the change in optical index from the semiconductor to the oxide, the optical thickness and the resonant wavelength of the cavity are also tailored along the lateral oxidation. As a result, the resonant wavelength of a device depends on its distance from the etched edge.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01S5/40 H01S5/183 H01L31/0232 H01L33/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H01S H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Y		3, 14
A	---	15, 25

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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